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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,535	07/29/2003	Hardayal Singh Gill	HSJ920030016US2	6066
51298	7590	05/23/2005	EXAMINER	
CRAWFORD MAUNU PLLC 1270 NORTHLAND DRIVE SUITE 390 ST. PAUL, MN 55120			WATKO, JULIE ANNE	
			ART UNIT	PAPER NUMBER
			2653	

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,535

Applicant(s)

GILL ET AL.

Examiner

Julie Anne Watko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-8, 10, 12-16 and 18-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9, 11, 17 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/24/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/24/03, 09/22/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: IDS 07/29/2003.

DETAILED ACTION

Election/Restrictions

1. Claims 18-, 10, 12-16 AND 18-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on February 14, 2005.

Information Disclosure Statement

2. A line has been drawn through form 1449 from a duplicate IDS.

Drawings

3. The drawings were received on 11/24/2003. These drawings are not acceptable in view of the objection below.

4. Figures 1-5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. Figure 8 is objected to for the same reasons as Figs. 3-4 and 7a-b. See the paper mailed October 29, 2003. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended

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drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites “amorphous layers formed between the spacer and the first and second seed layers, the amorphous layer stopping epitaxial growth between the first self-pinned layer and the first and second hard bias layers.” There is insufficient antecedent basis for the limitations “the spacer” and “the first and second seed layers” in the claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 9-17 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rachid et al (US PAP 2004/0114284 A1) in view of Ishikawa et al (US PAP No. 2001/0030887 A1).

Due to similarities in recited subject matter, the independent claims are treated together.

As recited in claim 17, Rachid et al show a magnetic storage system, comprising a moveable magnetic storage medium for storing data thereon; an actuator positionable relative to the moveable magnetic storage medium; and a magnetoresistive sensor, coupled to the actuator, for reading data from the magnetic recording medium when position to a desired location by the actuator.

As recited in claims 9, 17 and 25, Rachid et al show a first pinned layer having a first magnetic orientation, the first pinned layer having a first end, a second end and central portion; a second pinned layer formed over only the central portion of the first pinned layer, an interlayer being disposed between the first and second pinned layers; a free layer formed in a central region

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over the second self-pinned layer; and a first and second hard bias layers formed over the first and second ends of the first pinned layer respectively, the first and second hard bias layer abutting the free layer, the first and second end of the first pinned layer extending under the hard bias layers at the first and second ends.

As recited in claims 9, 17 and 25, Rachid et al are silent regarding whether the pinned layers are self-pinned.

As recited in claims 9, 17 and 25, Ishikawa et al show that pinned layers are self-pinned (“The two ferromagnetic films 51 and 53 should have an adequate thickness, so that the pinned layer has a large effective coercive force for it to be of self-pinned type. The result is a reduction of static magnetic field applied from the pinned layer and obviation of the antiferromagnetic film to fix the pinned layer. The advantage is a reduction of the entire film thickness of the head and a reduction of the gap length”, see ¶ 0010).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the pinned layers of Rachid et al self-pinned as taught by Ishikawa et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to make the pinned layers self-pinned in order to reduce a static magnetic field applied from the pinned layers and to obviate the antiferromagnetic film so as to reduce the entire film thickness and to reduce the gap length as taught by Ishikawa et al (see ¶ 0010).

11. Regarding claim 11: In the absence of a reasonably definite interpretation of a claim, it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions (*In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962)). See MPEP 2143.03.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lin et al (US PAP No. 2003/0002226 A1) teach that "1) an insulating polycrystalline seed layer 311 is formed 401 in a first DC magnetron sputtering chamber 301; 2) an insulating amorphous-like seed layer 312 is formed 402 in a second DC magnetron sputtering chamber 302; 3) a conducting seed layer 313 and ferromagnetic free layer 315 are formed 403 in an ion beam sputtering chamber 303 (a fourth seed layer 314 may also be formed in the ion beam sputtering chamber 303); and 4) the spacer layer is then formed 404 in another DC magnetron sputtering chamber 304 (the remaining sensor structure up through the antiferromagnetic layer or cap layer may also be formed 404 in the other DC magnetron sputtering chamber 404)" (see ¶ 0050).

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (571) 272-7597. The examiner can normally be reached on Tues. & Thurs. until 9PM, Wed. & Fri. until 5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Julie Anne Watko
Primary Examiner
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May 18, 2005
JAW

A handwritten signature in black ink, appearing to read 'Julie Anne Watko', with a long horizontal flourish extending to the right.